# ARTIFICIAL INTELLIGENCE
# (CSC 462)
# LAB ASSIGNMENT # 4



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**REG NO:**                  FA21-BSE-045

**CLASS & SECTION:**    BSSE-5A

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**DATE SUBMITTED:**     23-12-2023


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## QUESTION 1

**Consider the knowledgebase in activity 3 of lab 13. Define a brotherhood relationship and write a query that gives every uncle of a person X in the knowledgebase. An uncle is defined as brother of one's parent.**

## Answer:

## Output:

```
lab4.pl [modified]
brother(Person1, Person2) :-
    parent(Person1, Parent),
    parent(Person2, Parent),
    Person1 \= Person2,
    male(Person1).
uncle(Uncle, Person) :-
    parent(Person, Parent),
    brother(Uncle, Parent).

▲
```

## Question No. 2:

Consider the knowledge base of activity 4 of lab 13. Write a query to find all pairs that share grand-parenthood relationship.

## Answer:

## Output:

```
lab4.pl
grandparent(Grandparent, Grandchild) :-
    parent(Grandchild, Parent),
    parent(Parent, Grandparent).

▲
```

## Question No. 3:

**Resistance and Resistive Circuits - write a prolog program that will help us find the equivalent resistance of a resistive circuit.**

## Answer:

## Output:

```prolog
lab4.pl

resistance_series([], 0).
resistance_series([R|Rs], TotalResistance) :-
    resistance_series(Rs, RestResistance),
    TotalResistance is R + RestResistance.

resistance_parallel([], 0).
resistance_parallel([R|Rs], TotalResistance) :-
    resistance_parallel(Rs, RestResistance),
    TotalResistance is 1 / ((1/R) + (1/RestResistance)).
```